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EXPERIMENTAL FOREST NO. 10
An Example of Good Farm Woods Management

by

John Aughanbaugh

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One of the outstanding forests in northeastern Ohio is the Whitford Woods on the Windsor Ford property a few miles from Middlefield, Geauga County. A 47-acre portion of the Whitford Woods ranks high among 30 select woodlands supervised by the Forestry Department, Ohio Agricultural Experiment Station. It serves, as do the others, not only locally to exemplify good forest practices, but also as a showplace for the State Extension and Farm Forestry Services.

It is widely recognized today that sawtimber of the best quality is in great demand, short supply and high priced. Due to previous grazing, high-grading, over-cutting or neglect, too many of Ohio's farm woodlands are stocked with worthless "weed", "wolf" and "cull" trees. They require planned improvement cuts in order to rebuild a sound growing-stock, before high-quality logs can be produced at top capacity. Frequent light selective cutting, designed to put more growth onto valuable trees, can make woodland management an increasingly profitable part of the farm program.

Whitford Woods on the other hand, has been carefully tended by father and son for over 30 years. Removal of their cattle from this woodland was their first wise move. There grew up then a denser stand of timber in which they took enough interest to weed out occasionally the poorest trees, working always with a view to more profitable succeeding harvests. Woods work helped to round out a full year's employment on their farm. Their example is not exceptional, for in Ohio many an abused farmwoods has undergone gradual improvement over a long period.

Today Whitford Woods supports a select, thrifty growing-stock, consisting principally of sugar maple, beech, red oak, white ash, red maple, elm, hickory and tuliptree in that numerical order. It has also a scattering of basswood, black cherry, white oak, yellow birch, butternut, cucumber and aspen.

Inferior and small-diameter logs from this tract have been supplying the tenant farmers with needed building materials, fence posts and fuel. In 1934, the owner began to make and sell maple syrup, thus providing at his sugar house an outlet for the annual thinnings when worked up into firewood. If his present plans to install a charcoal kiln should materialize, it would afford even better opportunities for farm use and sale of low-grade wood.

Inventory of the Timber

Not until the fall of 1946 was this tract made available to the Experiment Station for a demonstration-experimental woods. That commitment gave the owner-cooperator an increased lively interest in his standing timber.

Planned forest management, to attain the maximum annual growth potential, is dependent on recurrent inventories or cruises of the growing-stock. Accordingly, research foresters established there 47 one-fifth-acre growth study plots at regularly spaced intervals, amounting to a 20 percent continuous sampling of the woods. Detailed measurements of the numbered trees on those plots were taken in October 1946, in April 1952, and again in November 1957.

Years of intensive care of this sugarbush has made it a quite productive and attractive farmwoods. Our accompanying chart records some beneficial changes in its overall stand condition.

Crop trees have almost doubled in volume, and probably more than doubled in value of the products they contain, during the past 11 growing-seasons. Sawtimber stocking per acre advanced from 4,454 to 8,290 board feet net (with cull deducted). This periodic annual increase represents a growth rate, i.e. an interest return, of 287 net board feet (6.9% per acre) - a substantial contribution to the farm income. And practically all of that growth was put on good sound, straight trees.

Yearly ingrowth of trees entering the 12-inch or sawlog-size class has averaged 92 board feet to the acre. With an annual cut per acre of only 26 board feet, mortality less than 5, and degrade to cull nil, the consumption and natural loss together offset but little of the regrowth. It left a big margin for build-up of the woods to optimum productivity, after which the full growth can be harvested on a sustained yield or continuous cropping basis. That in essence is forest conservation - planned use of the product without eating up the capital.

Diameter distribution by size classes, particularly for the sawimber, now approaches full-stocking in this all-aged beech-maple stand. The distribution is thus: (a) small timber (8 to 12 inches diameter breast high) - 71% by tree number, 17% by volume; (b) medium timber (14 to 20 inches d.b.h.) - 20% by tree number, 70% by volume; and (c) large timber (22 to 32 inches d.b.h.) - 2% by tree number, 13% by volume.

Much of the butt-log volume is in Grades 1 and 2, which command high prices and are in constant demand for veneer, cooperage, handle stock and manufacture into good quality lumber. Ohio should have more of such farmwoods well stocked with the best tree crop possible.

In Whitford Woods, sapling trees alone are inadequately represented, due principally to the dense overstory. Then, too, it is a commong but misguided practice in the sugarbush to remove "brush" that interferes with the sap collecting work. But our 1957 selectively-marked improvement cut (177 bd.ft. per acre) will open up the canopy somewhat and encourage additional reproduction. It will also have other advantages, for when trees with vigorous crowns are left well spaced, their growth and value increase enough to make up for those taken out in thinning. Good silvicultural practices stimulate young growth.

Growth Comparisons by Species

Table 1 presents pertinent comparisons of the growth being made by different tree species in this farmwoods. Just as good dairy farmers keep individual records on their cows, so alert farmwoods managers want to know the trees that are top-notch producers, likewise those yielding only poor or mediocre returns.

Scrutiny of the records reveals the best performers to be red oak, black cherry, tuliptree and white ash - the "moneymakers" to favor there when doing cultural work. Although sugar maple predominates, it grows more slowly than its associates, but yields syrup and specialty wood products of high value.

Improvement in quality, we are quite sure, has been much in excess of these tabular net growth percentages, for this farmwoods now is, or soon will be, at its peak of production. The timber, though yielding little commercial output to date, is capable of supporting a steadily increasing sawlog cut in the years ahead.

This tree farmer knows that wood is an important farm crop in Ohio, and that it can be grown like wheat, oats, or corn. So he makes timber growing a part of his farm enterprise. The foregoing data emphasize his success. Whitford Woods today is an object lesson to others, and a source of well-earned pride and satisfaction to its owner.

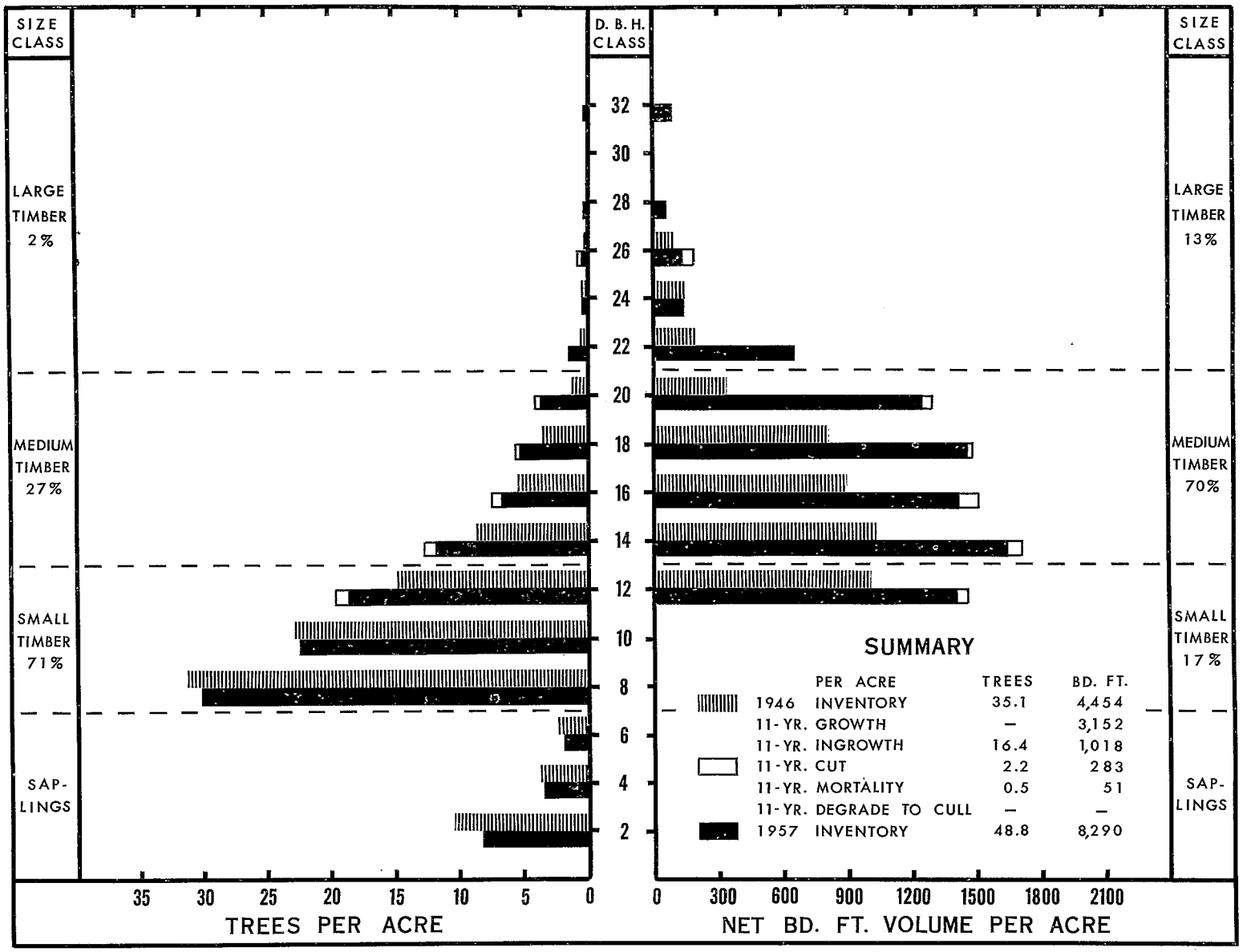
Table 1

COMPARATIVE GROWTH BY SPECIES
(Data on Per Acre Basis)

Species	Trees of Sawlog-size (Number)			Net Volume* (Bd.Ft.)			Periodic Annual Growth Per Tree (Bd.Ft.)		Periodic Annual Growth Per Species (%)	
	1946	1952	1957	1945	1952	1957	1946-52	1952-57	1946-52	1952-57
Sugar maple	13.7	15.6	17.8	2,061	2,364	3,284	2.9	7.5	2.2	5.7
Beech	5.0	6.1	6.5	499	680	888	3.8	6.2	4.8	7.4
Red oak	4.4	4.8	5.5	612	832	1,351	7.7	14.8	6.1	10.4
White ash	2.6	3.1	4.6	227	322	586	4.4	6.4	6.2	9.5
Elm	2.9	2.9	3.3	219	258	391	3.0	5.2	4.4	7.0
Tuliptree	2.3	2.3	2.5	401	510	738	9.4	13.8	5.4	6.9
Red maple	1.5	2.1	3.5	161	244	427	4.5	5.0	5.8	7.0
Hickory	1.5	2.0	3.1	116	175	312	3.0	4.0	5.2	7.0
Basswood	0.6	0.6	0.6	92	108	136	5.3	7.7	3.5	4.3
Misc.**	0.6	0.9	1.3	66	93	177	3.3	8.5	4.5	14.4
Total	35.1	40.4	48.7	4,454	5,586	8,290	4.2	7.9	3.9	6.9

*Cull factors were determined individually for each tree. All trees scaled by International $\frac{1}{4}$-inch rule.

**Black cherry, white oak, yellow birch, butternut, cucumber, large-tooth aspen.



GROWING-STOCK IN WHITFORD WOODS

MIDDLEFIELD TOWNSHIP, GEAUGA COUNTY, OHIO

1946 - 1957